

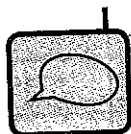
Objectives

In this lesson,
you will:

- Compare two problem situations algebraically.
- Compare two problem situations graphically.

Key Term

- point of intersection



SCENARIO In Lessons 1.8 and 1.9, you explored the costs of ordering T-shirts from two companies, U.S. Shirts and Hot Shirts.

Problem 1 Which Is the Better Buy?

- A. Your boss asks you to determine which company has the better buy for T-shirts in different situations. For an order of fewer than five shirts, is U.S. Shirts or Hot Shirts the better buy? What would each charge for exactly five shirts? Use complete sentences in your answer.

Use a complete sentence to describe how you found your answer.

- B. For an order of 18 shirts, which company's price is better? How much better is the price? Use complete sentences in your answer.

Use complete sentences to describe how you found your answer.

- C. For an order of 80 shirts, which company's price is better? How much better is the price? Use complete sentences in your answer.

Use a complete sentence to describe how you found your answer.

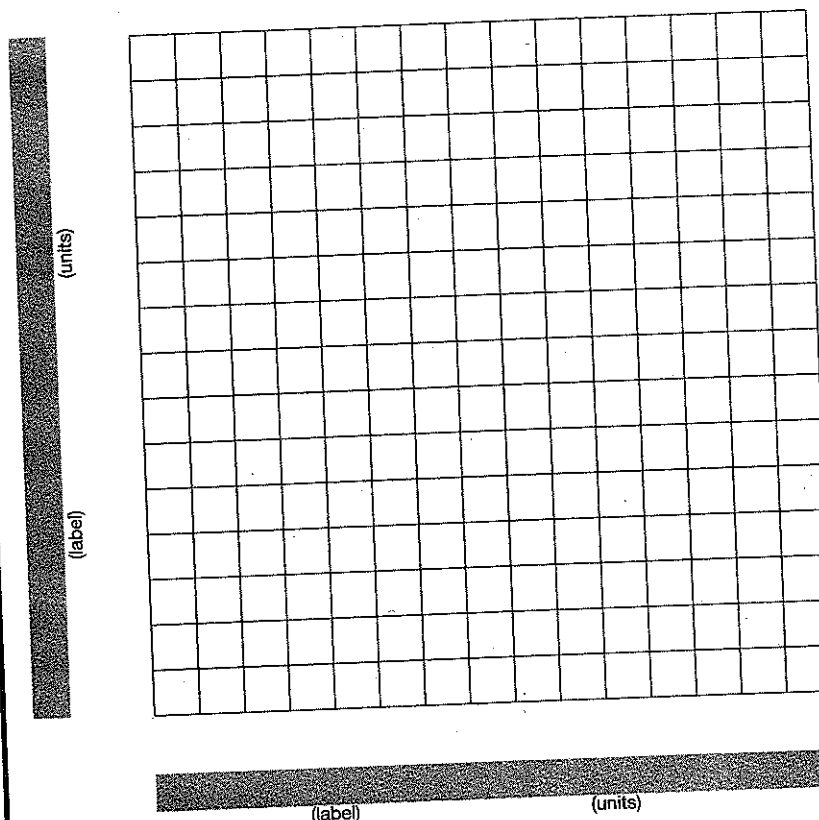
U.S. Shirts
\$8 per shirt
plus a one-time
set-up fee of \$15

Hot Shirts
\$5.50 per shirt
plus a one-time
set-up fee of \$49.95

Investigate Problem 1

1. Use the grid below to draw the graphs for the total cost for U.S. Shirts and Hot Shirts. Use the bounds and intervals shown in the table below.

Variable quantity	Lower bound	Upper bound	Interval
Number of shirts	0	150	10
Total cost	0	1500	100



2. Estimate the number of T-shirts for which the total costs are the same. Use a complete sentence in your answer.

Use a complete sentence to explain how you found the number of T-shirts.

3. For how many T-shirts is U.S. Shirts more expensive to order from? Use a complete sentence in your answer.

Investigate Problem 1

4. For how many T-shirts is Hot Shirts more expensive to order from? Use a complete sentence in your answer.
5. Look back to your graph on the previous page. Use complete sentences to describe the graphs in your own words.

Notice that the graphs *intersect* at about (14, 127). This **point of intersection** indicates where the total cost for each company is the same. So, when U.S. Shirts sells 14 shirts, the total cost is \$127 and when Hot Shirts sells 14 shirts, the total cost is \$127. You will learn more about points of intersection in Chapter 7.

6. Write a report for your boss that compares the costs of ordering from each company. Try to answer your boss's question, "Will Hot Shirts' prices affect the business at U.S. Shirts?"

Assignment

Assignment for

Name _____ Date _____

1

Comparing U.S. Shirts and Hot Shirts Comparing Problem Situations Algebraically and Graphically

Two twin brothers, Mike and Mark, are looking for after school jobs. They are both offered jobs at grocery stores. Mike is offered a job at Fresh Foods making \$10 per hour. Mark is offered a job at Groovy Groceries making \$8 an hour, plus a one-time hiring bonus of \$100. Each twin believes that he has been offered the better job.

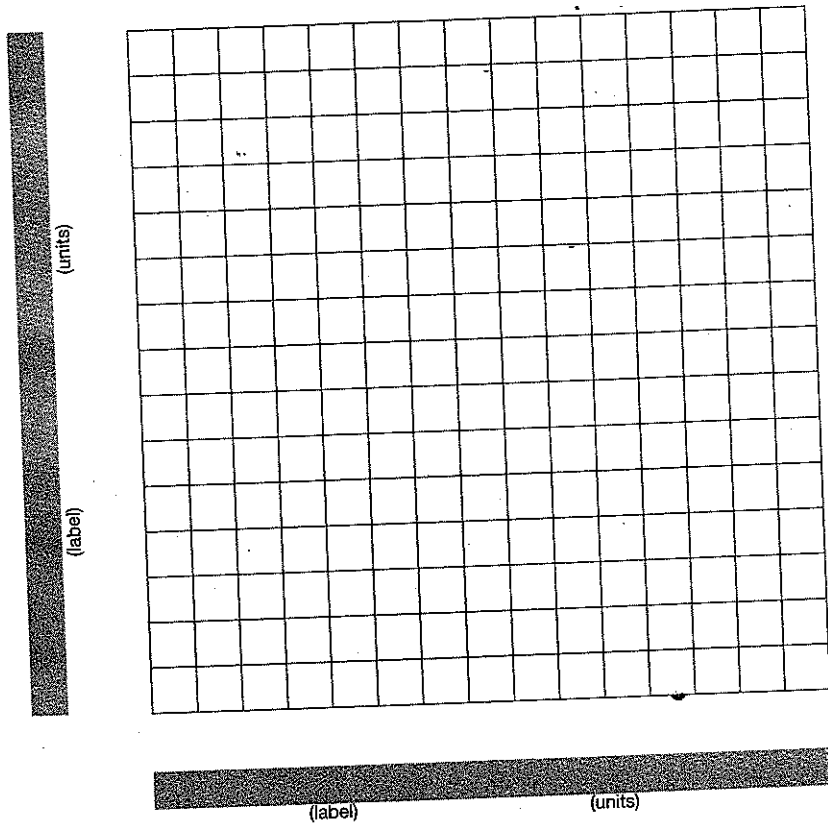
1. How much does Mike earn at Fresh Foods if he works 20 hours? 40 hours? 60 hours?
2. Use a complete sentence to explain how you found Mike's earnings.
3. How much does Mark earn at Groovy Groceries if he works 20 hours? 40 hours? 60 hours?
4. Use a complete sentence to explain how you found Mark's earnings.
5. Complete the table using the data from the problem and from Questions 1 and 3. Be sure to fill in your units.

Labels
Units

Time worked	Mike's earnings at Fresh Foods	Mark's earnings at Groovy Groceries

6. Use the grid below to create a graph of the data in the table in Question 5. First, choose your bounds and intervals. Be sure to label your graph clearly.

Variable quantity	Lower bound	Upper bound	Interval
Time worked			
Earnings			



7. After how many hours will the twins earn the same amount of money? Use complete sentences to explain how you found your answer.
8. Whose job is better, Mike's or Mark's? Use complete sentences to explain your reasoning.